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Richard C. Auchterlonie
Signature Reg. No. 30,607



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Peter Bixby, John Forecast,
William O. Hultin, Sorin Faibish,
Wayne W. Duso

Serial No.: 09/834,427

Confim. No. 5914

Filed: April 13, 2001

For: MPEG DUAL-CHANNEL DECODER
DATA AND CONTROL PROTOCOLS
FOR REAL-TIME VIDEO STREAMING

Group Art Unit: 2614

Examiner: Unknown

Atty. Dkt. No.: 10830.0071.NPUS00

SUBMISSION OF FORMAL DRAWINGS

ATTN OFFICIAL DRAFTSMAN

Commissioner for Patents
Washington, D.C. 20231

Sir:

Applicants hereby submit the formal drawings (21 sheets) for the above-referenced application and request that these drawings be accepted for filing.

Respectfully submitted,

Richard C. Auchterlonie

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PTO/SB/21 (08-00)

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Application Number

09/834,427

Filing Date

April 13, 2001

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First Named Inventor

Peter Bixby

OCT 05 2001

Group Art Unit

2614

Technology Center 2600

Examiner Name

Unknown

Total Number of Pages in This Submission

23

Attorney Docket Number

10830.0071.NPUS00

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<input type="checkbox"/> Fee Attached	<input checked="" type="checkbox"/> Formal Drawings (21 sheets)	<input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences
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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or individual name

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Richard C. Auchterlonie

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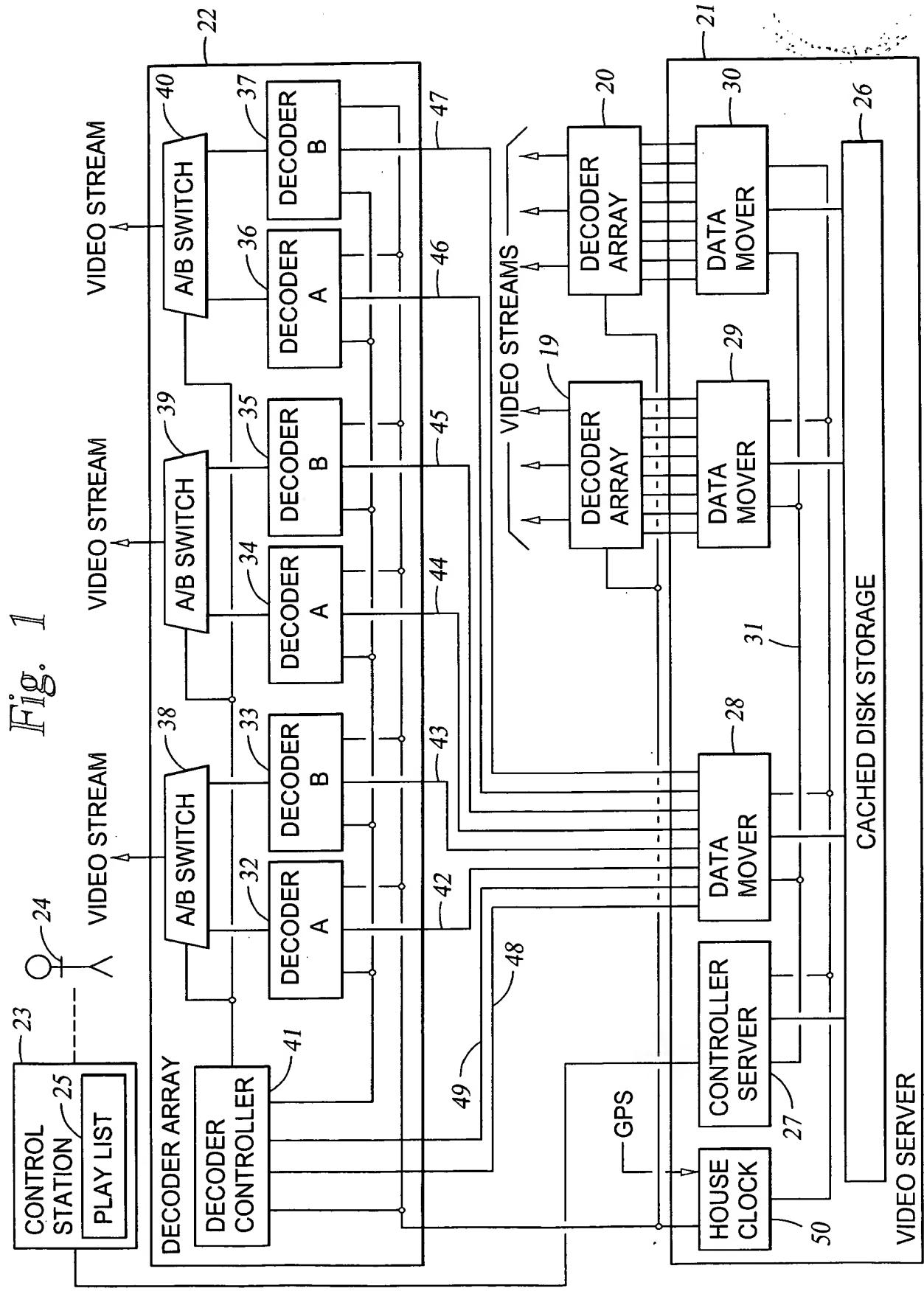
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Date

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Fig. 1



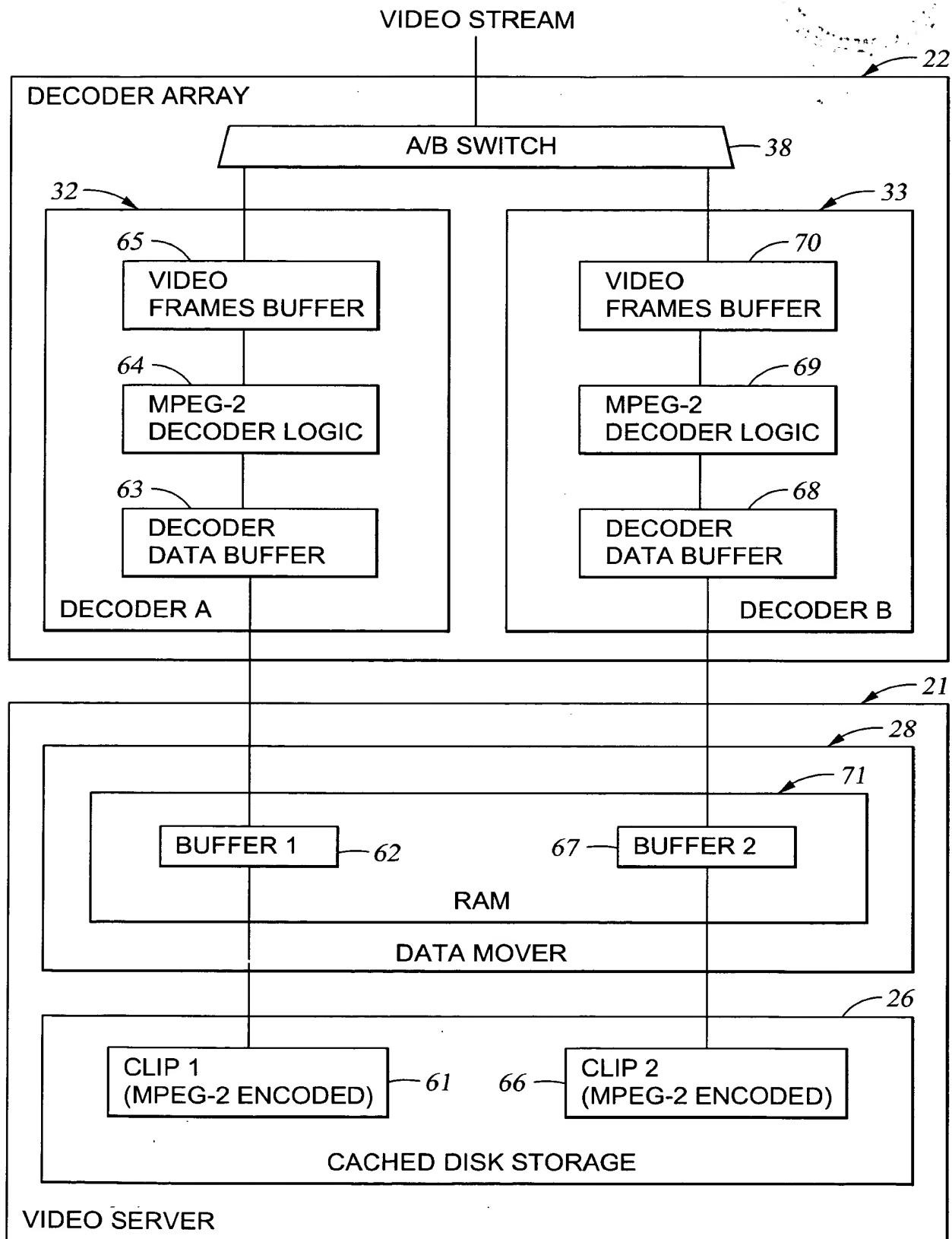


Fig. 2

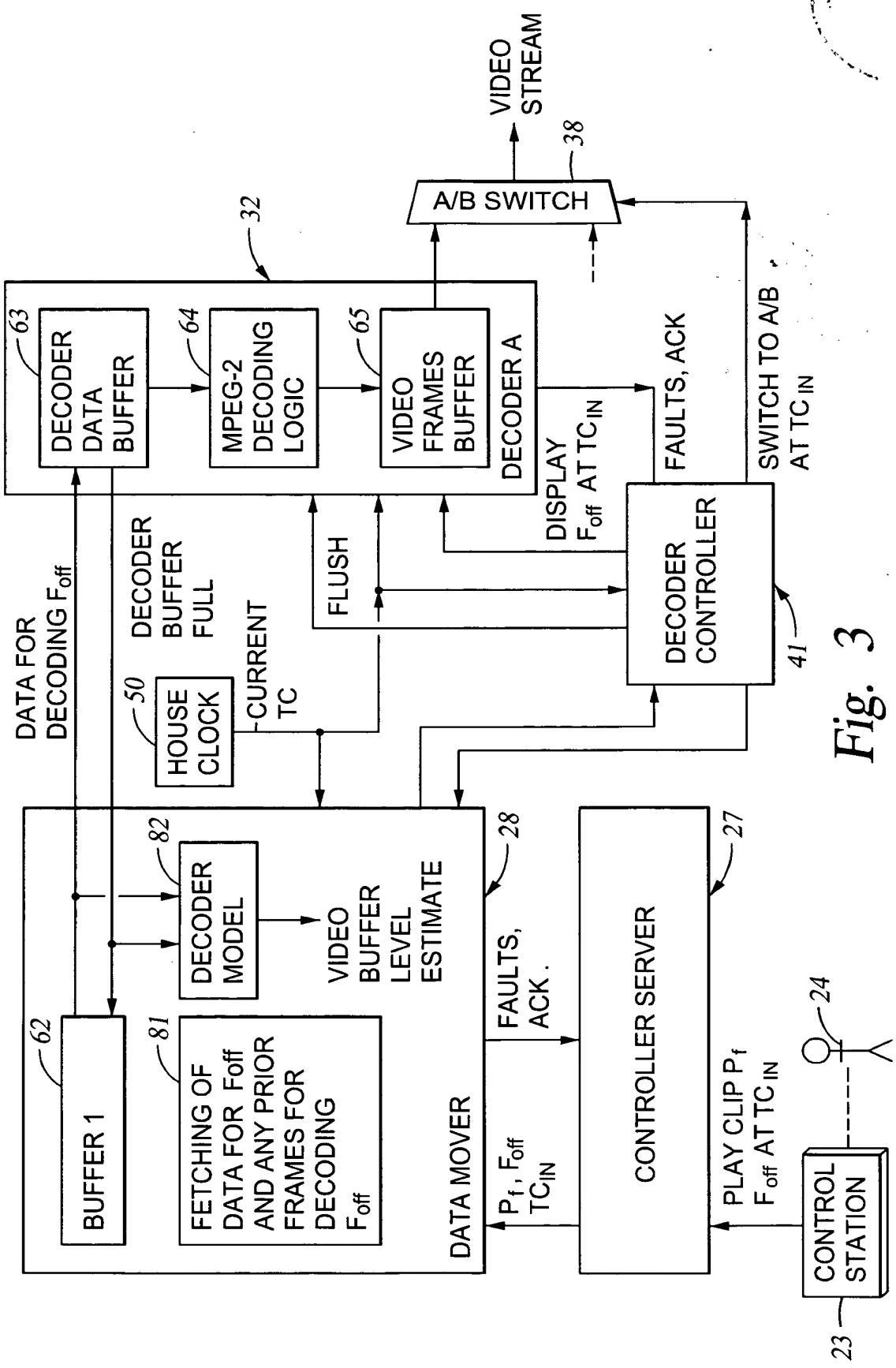


Fig. 3

Fig. 5

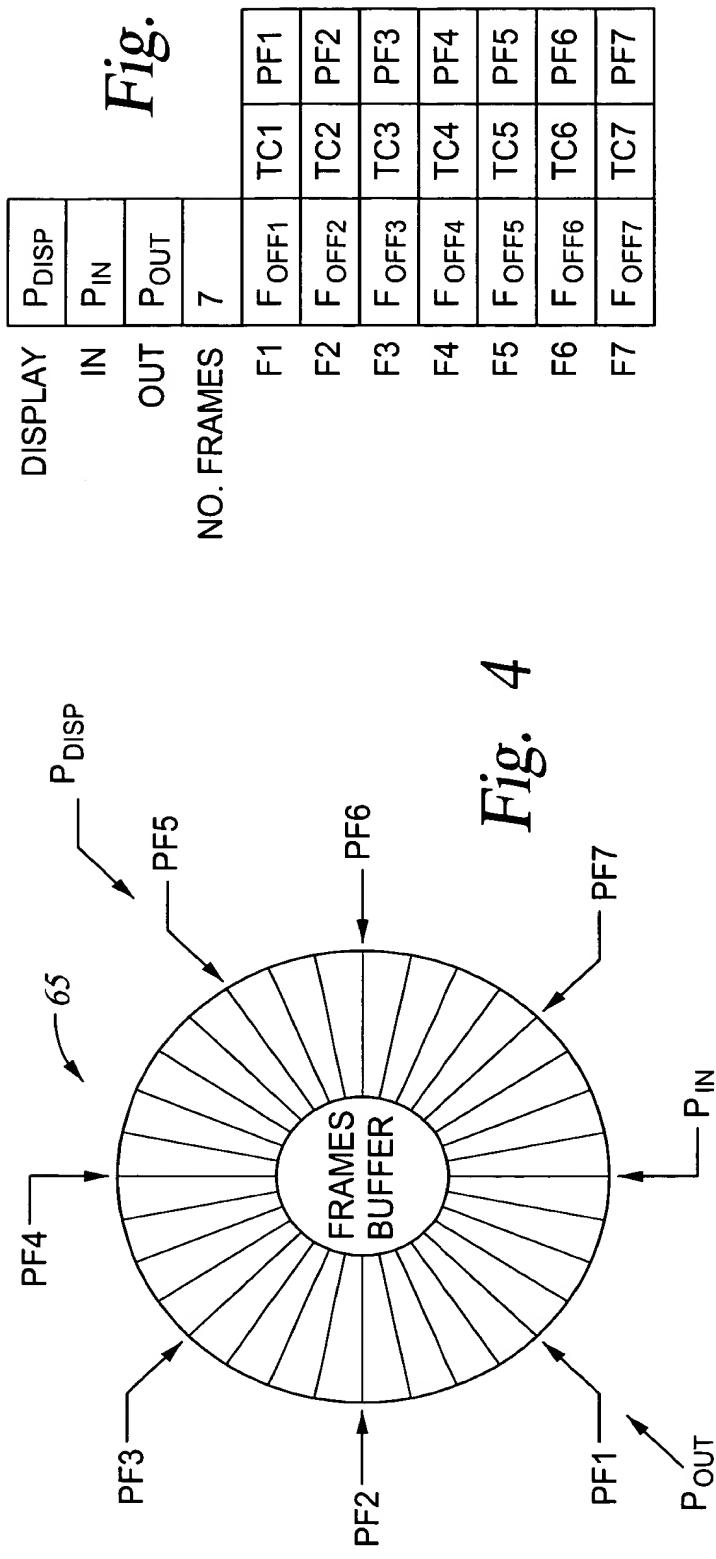


Fig. 4

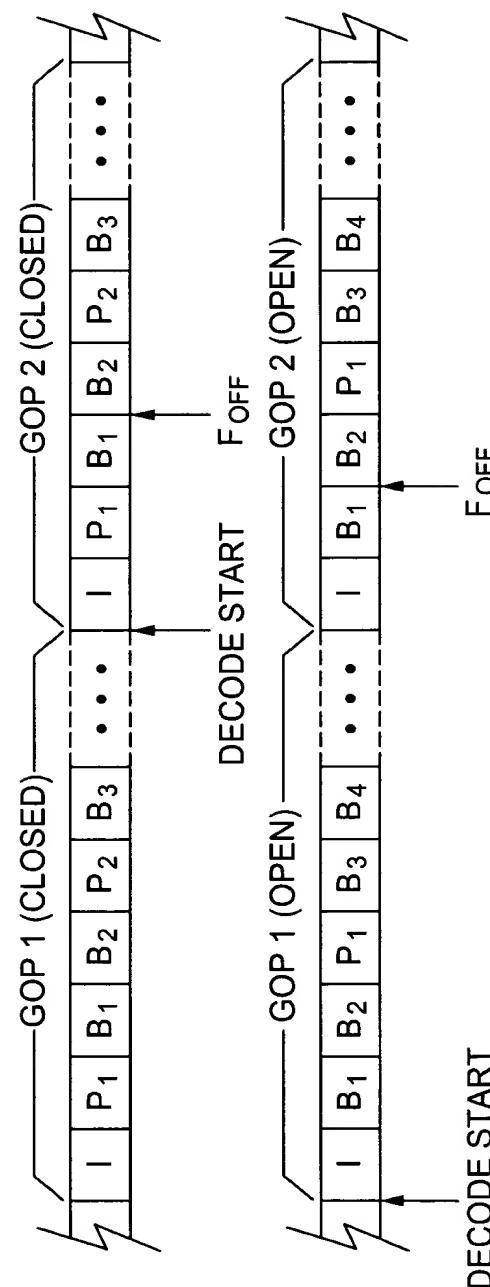
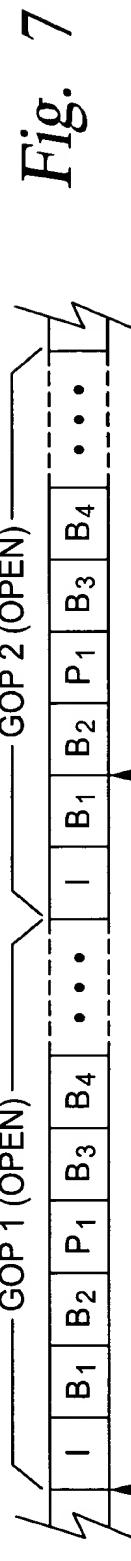


Fig. 6



DECODE START

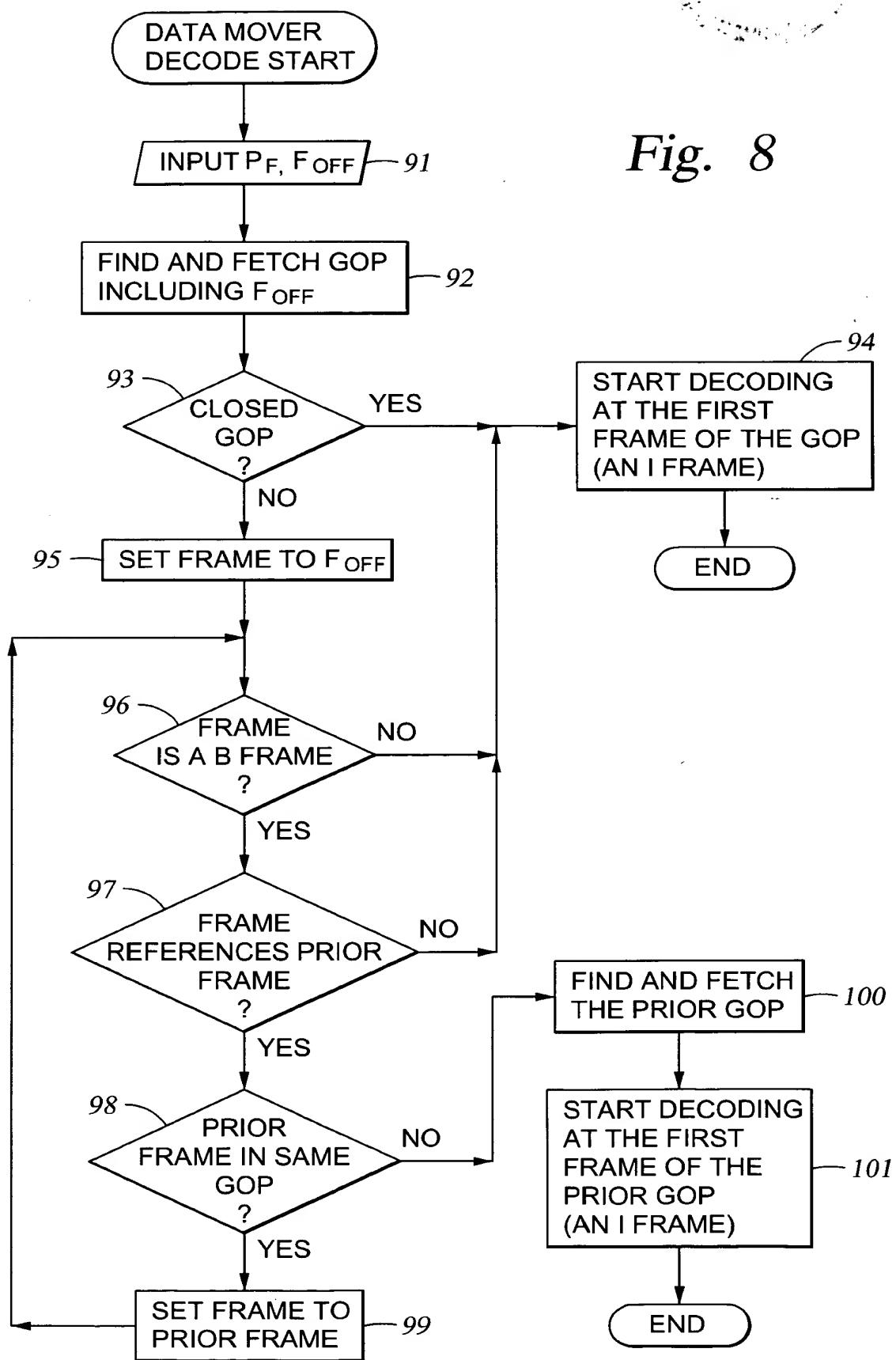


Fig. 8

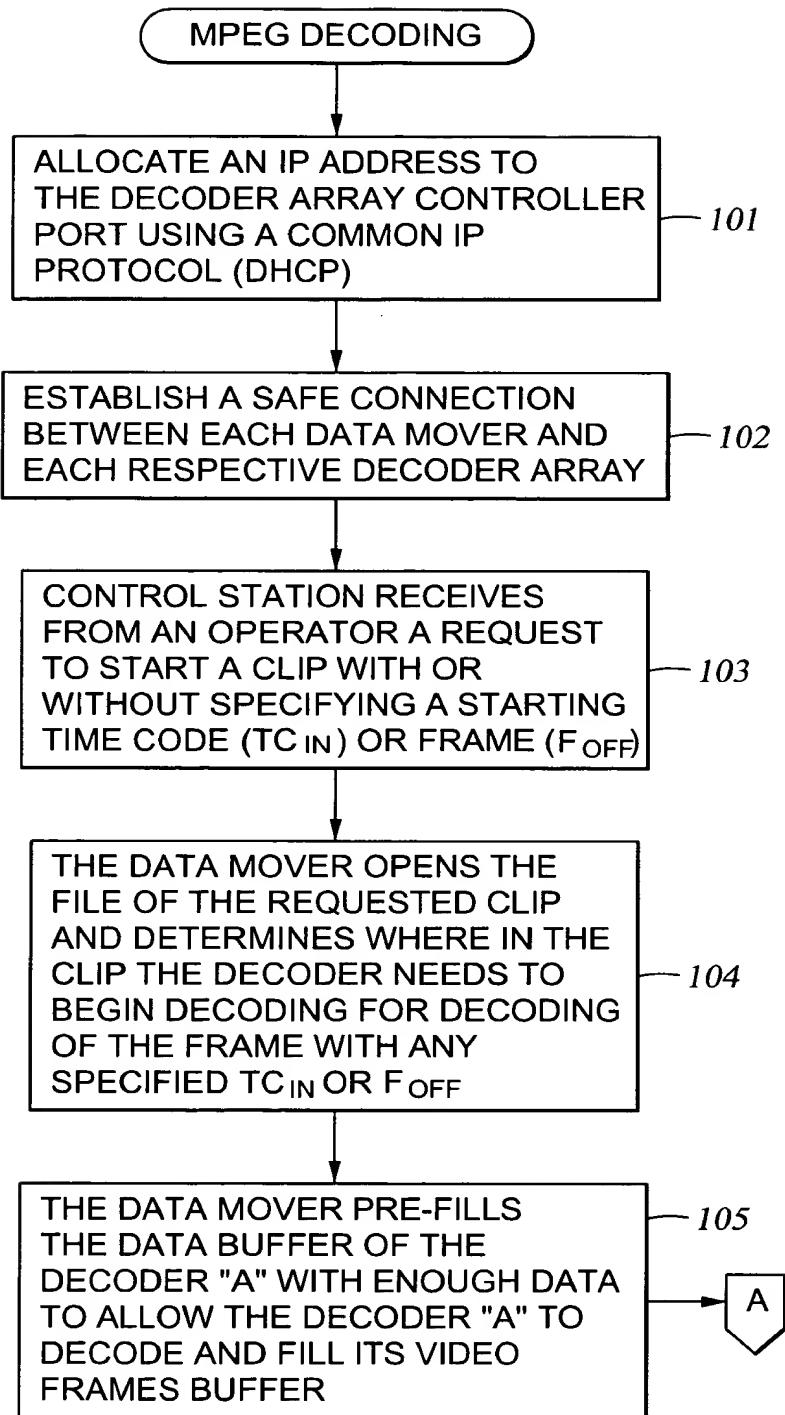


Fig. 9

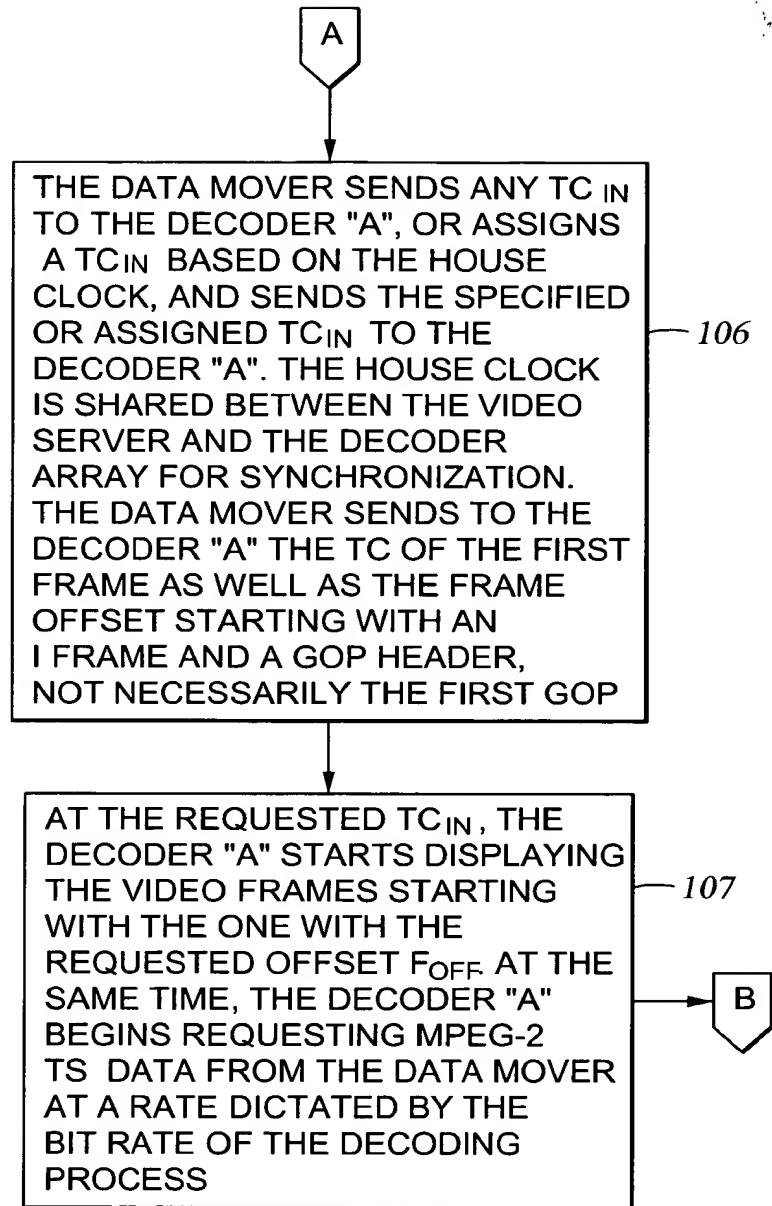


Fig. 10

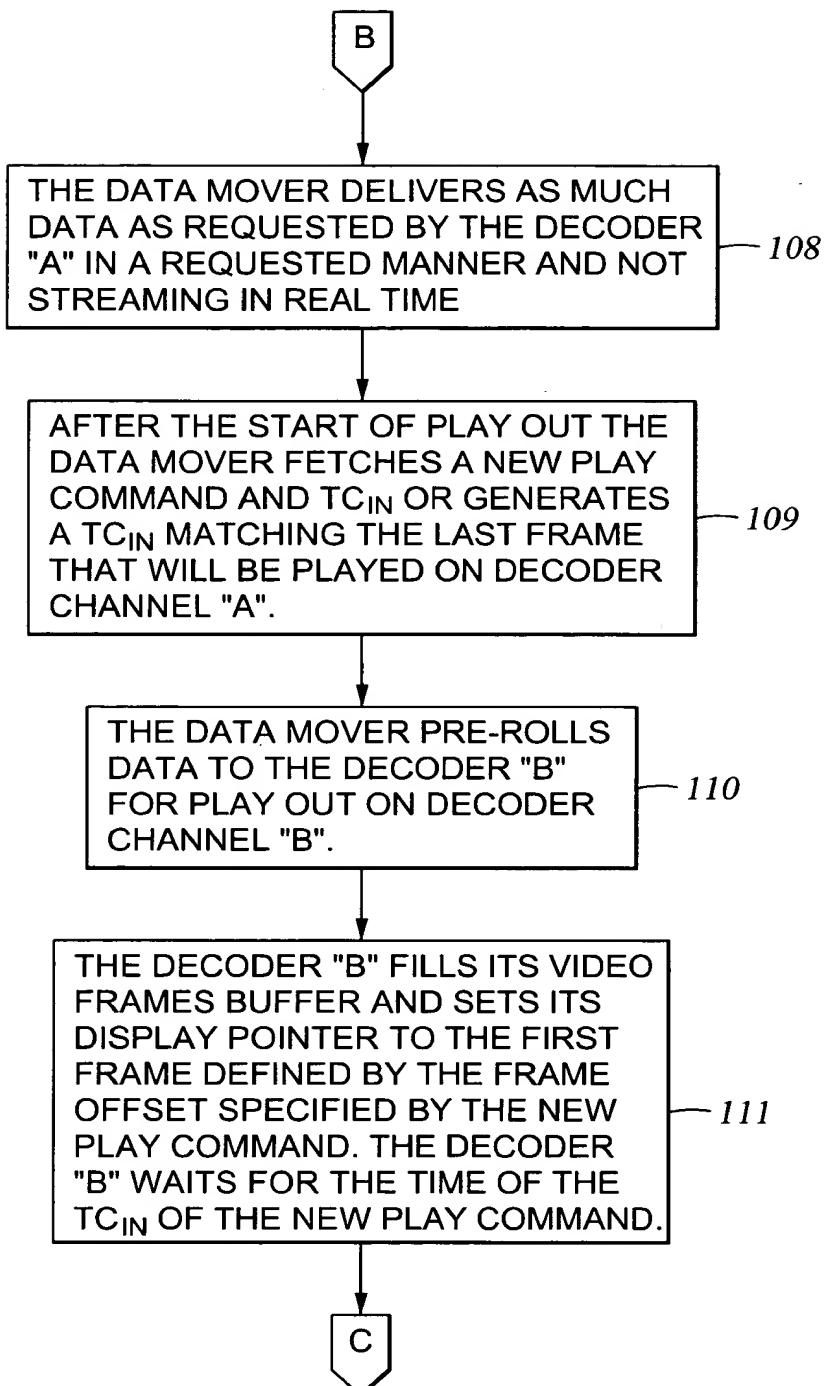


Fig. 11

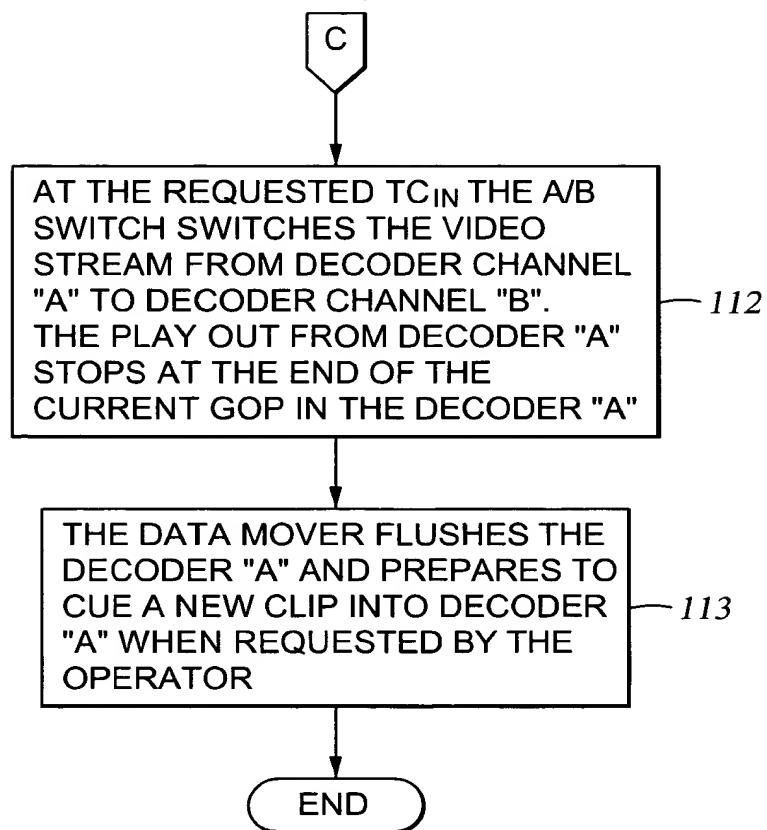


Fig. 12

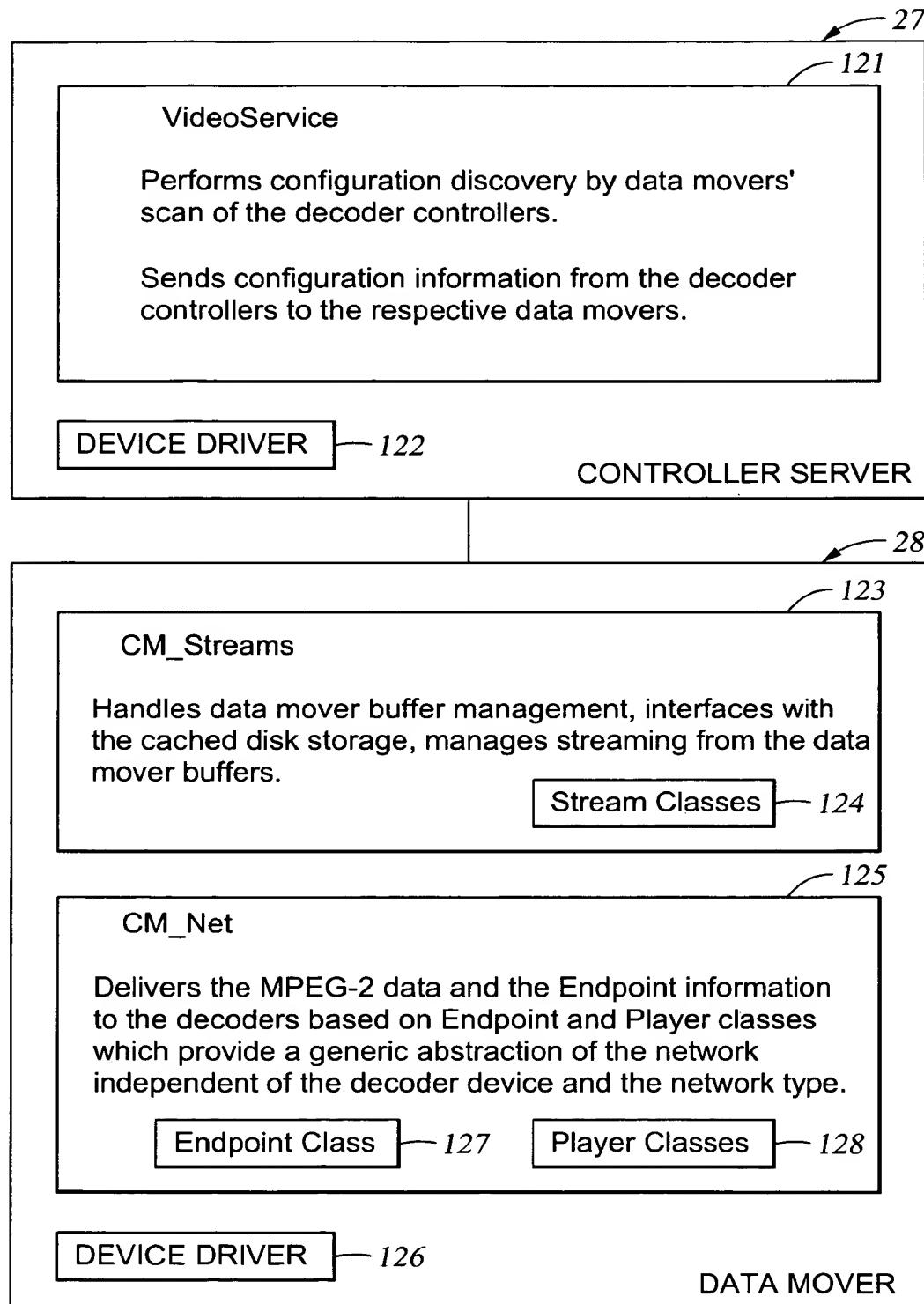


Fig. 13

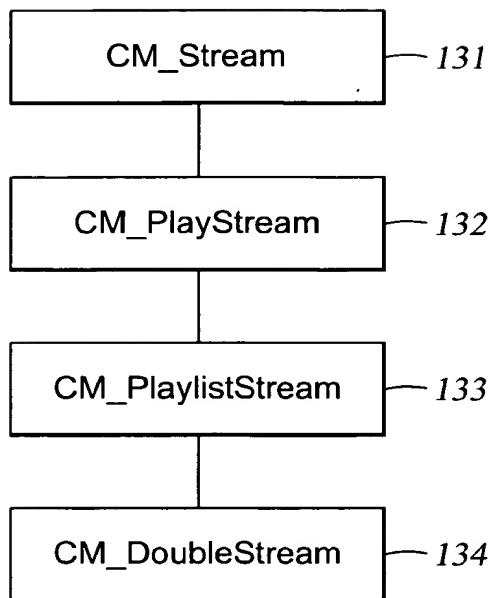


Fig. 14

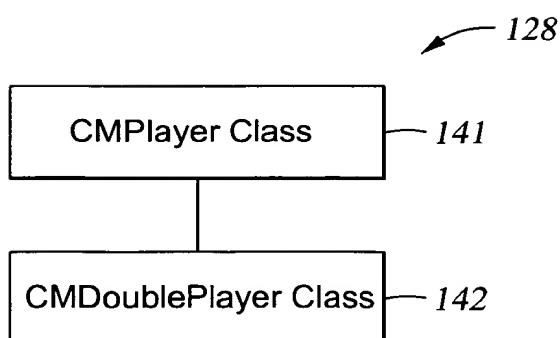


Fig. 15

Control Protocol	
<u>Configuration.</u>	Allows the data mover to determine the configuration of the decoder array and set up any configuration parameters. Commands: QueryStatus, Configure
<u>Streaming.</u>	Controls delivery of streams (i.e., timing, clips, transition type). Commands: PrerollClip, ModifyDisplayTime, CancelClipPreroll, PauseClip, ResumeClip, ModifyClip.
<u>Asynchronous status reports.</u>	Asynchronous reports of significant events from the decoder array to the data mover. Commands: ClipHasStarted, ClipHasEnded, ClipIsEnding, TrapMessage, EditSummary.
<u>Edit.</u>	Allows all decoders in the decoder array to be controlled by an edit review station. Commands: Jog forward/backward, Shuttle forward/backward, Stop, Goto a specific timecode, and normal Play.

Fig. 16

Format of Streaming Protocol Ethernet Packet

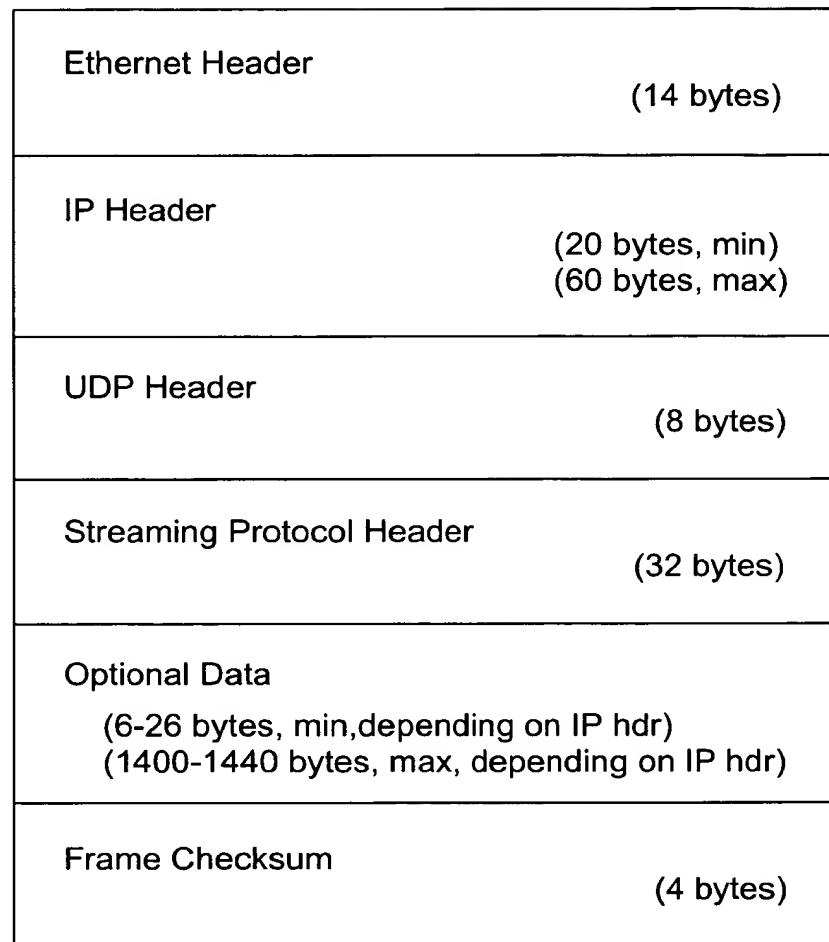


Fig. 17

Request Message Header Format		
	Clip ID Number	Sequence Number
	byte offset	window size
state	Reserved	speed
	RESERVED	
	RESERVED	

Fig. 18

Data Message Header Format		
Data message number	Clip ID Number	Sequence Number
	offset	
0x00	0x00	data length
flags	RESERVED	
	RESERVED	
	RESERVED	

Fig. 19

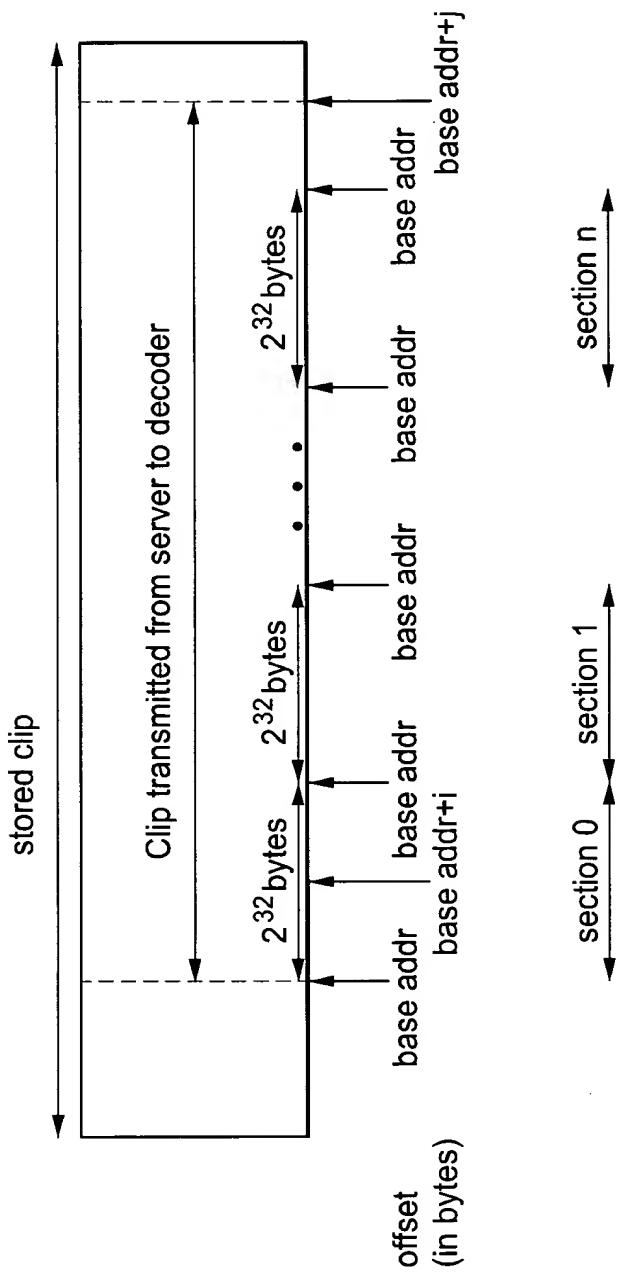
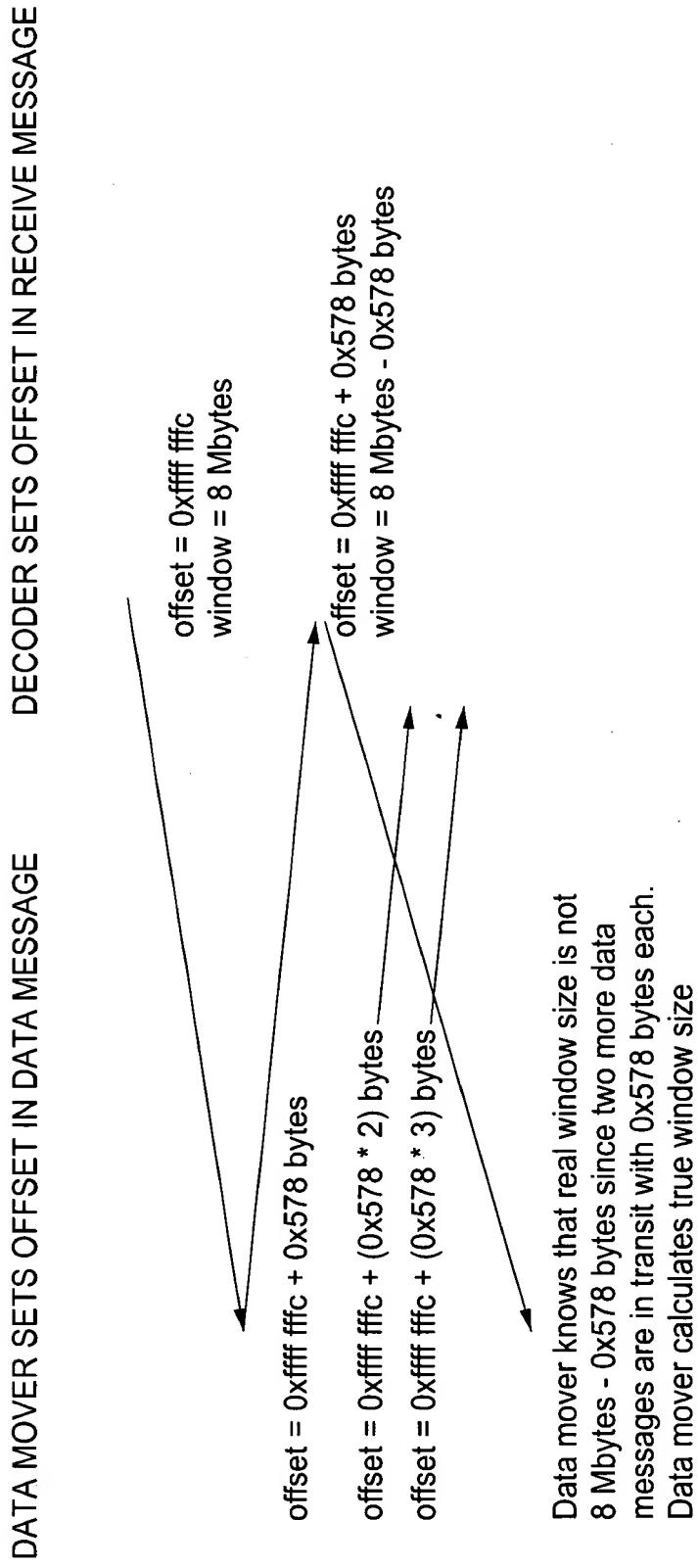


Fig. 20

Fig. 21



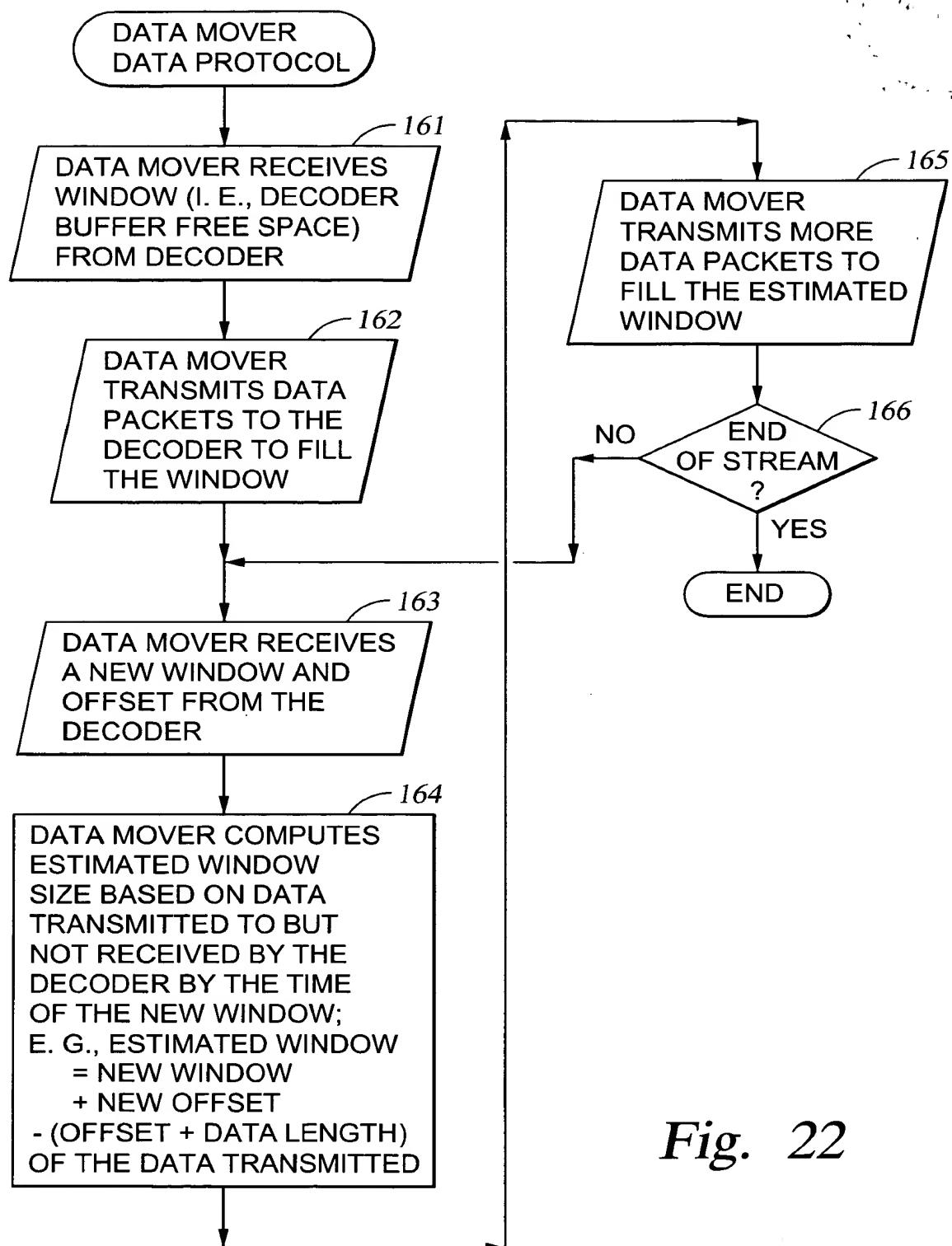


Fig. 22

DATA MOVER SETS OFFSET IN DATA MESSAGE

DECODER SETS OFFSET IN RECEIVE MESSAGE

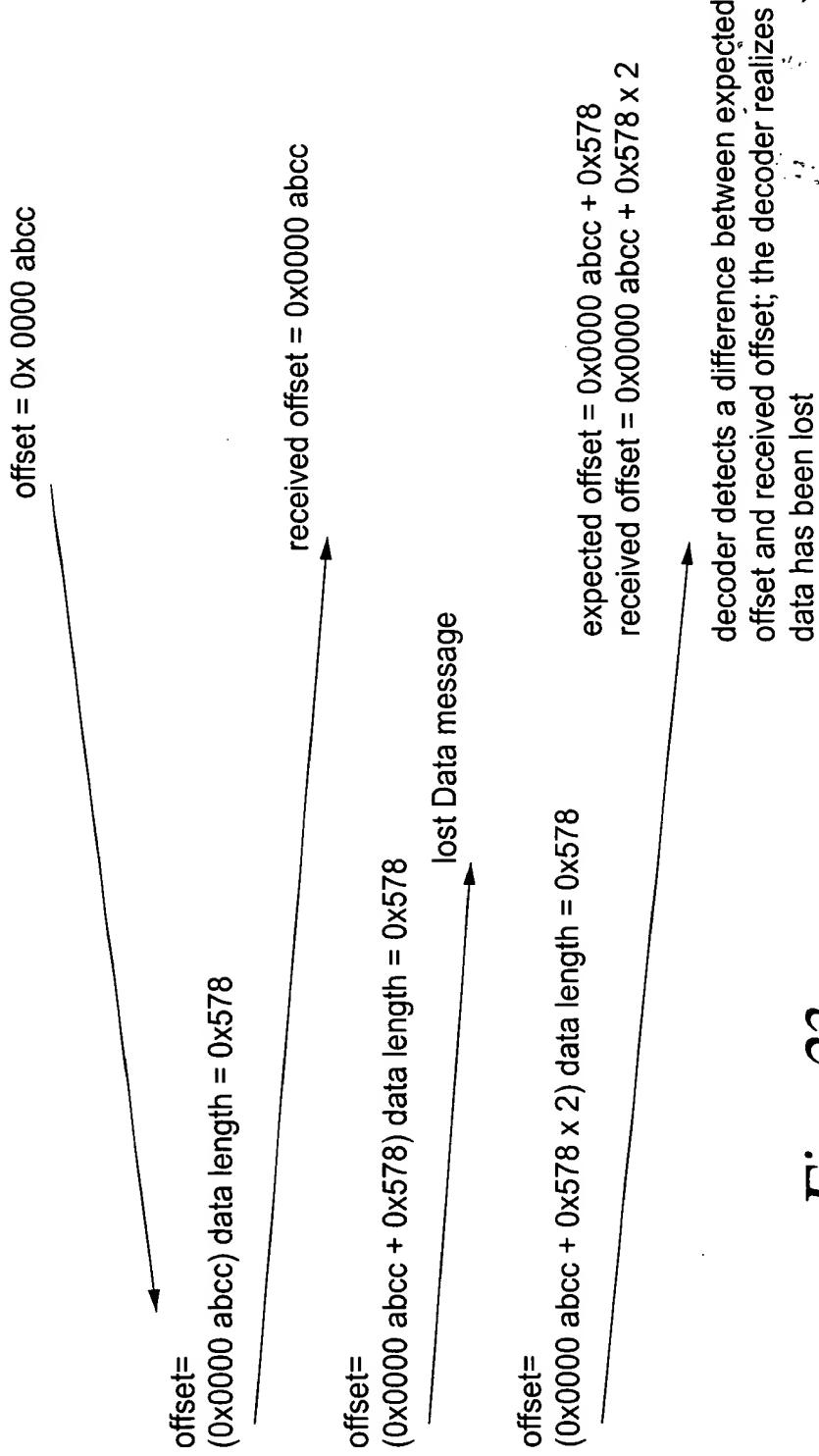


Fig. 23

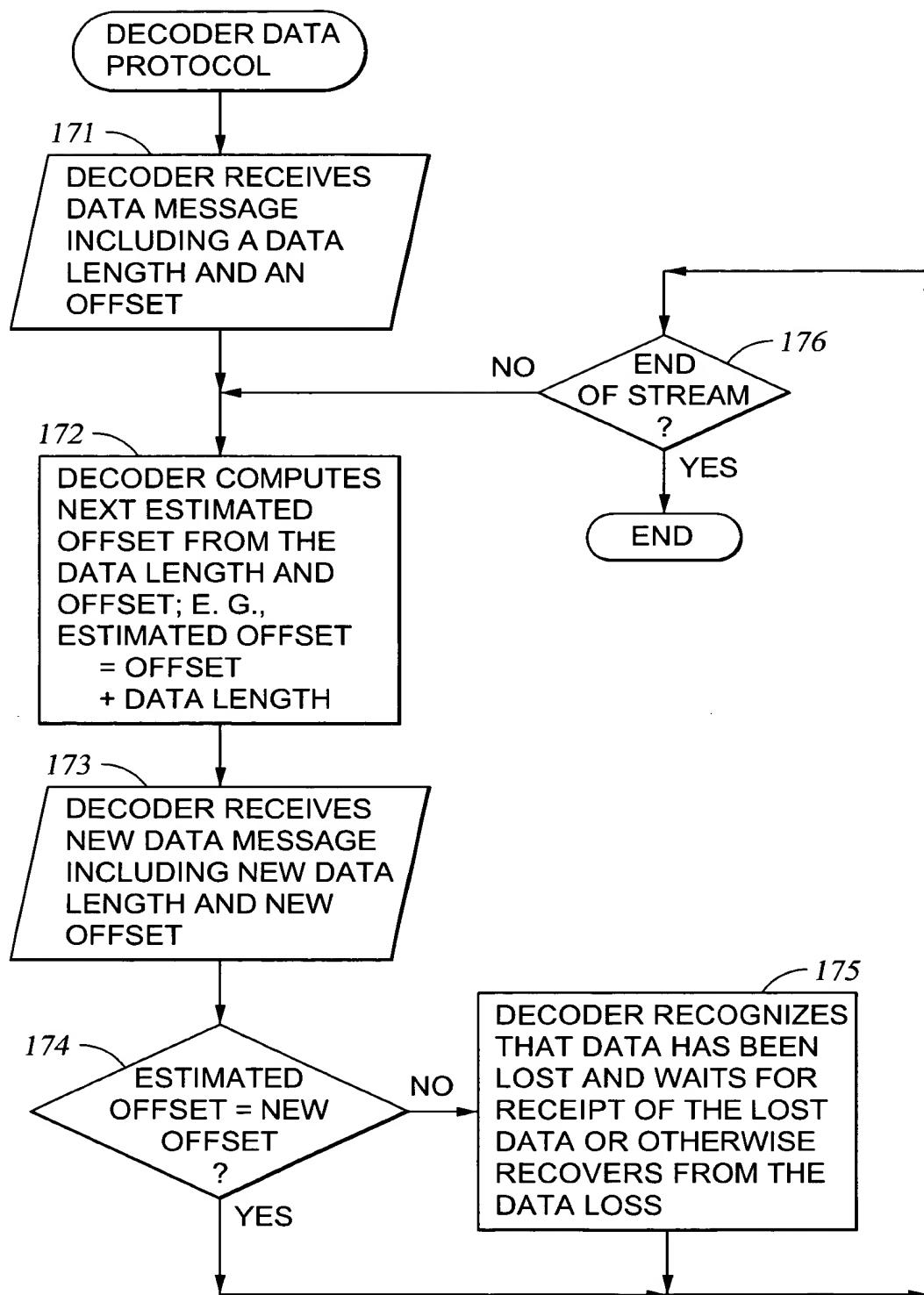


Fig. 24

Definition of Streaming States

Streaming State	Definition
Cueing	Data mover sends data to the decoder, at least up to the time code that must be displayed. The data rate can be at a rate convenient for the data mover. The decoder consumes the data at 1 x real time. It is not important if the decoder underflows, since the underflow would be before the display time.
Streaming	The data mover sends data to the decoder at 1 x real time and the decoder consumes the data at 1 x real time; the decoder can underflow/overflow and it will affect the picture presented to the viewer.
Stopped	The decoder is not consuming data. During this state, the decoder continues to send Request messages at the configured Request interval.
non-overlapped	This state requires that the decoder send a new Request message only after receiving a response from the previous Request message. The data mover may use this mode for testing.

Fig. 25

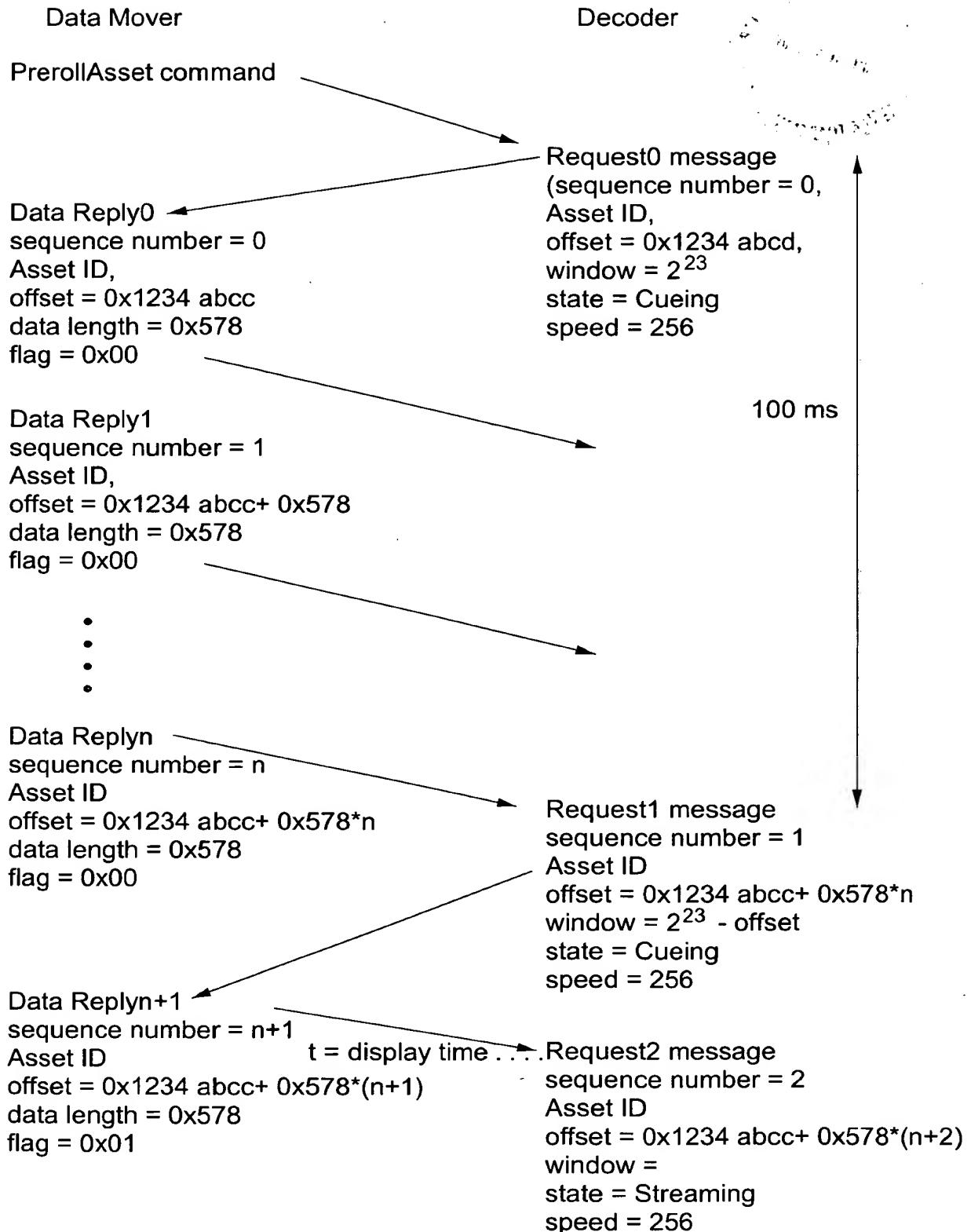


Fig. 26